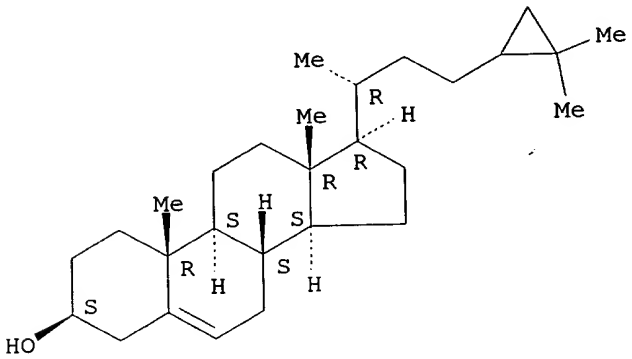
L4 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2000 ACS
RN **38362-69-5** REGISTRY
CN 24-Norchol-5-en-3-ol, 23-(2,2-dimethylcyclopropyl)-, (3.beta.)- (9CI)
(CA
INDEX NAME)
FS STEREOSEARCH
MF C28 H46 O
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

Absolute stereochemistry.




7 REFERENCES IN FILE CA (1967 TO DATE)
7 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L4 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2000 ACS
RN **20780-41-0** REGISTRY
CN Ergosta-5,24-dien-3-ol, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Ergosta-5,24-dien-3.beta.-ol (7CI, 8CI)
OTHER NAMES:
CN .DELTA.5,24-Ergostadien-3.beta.-ol
CN 24-Methyl-24-dehydrocholesterol
CN 24-Methyldesmosterol
CN Ergosta-5,24-dienol
FS STEREOSEARCH
MF C28 H46 O
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT,
MEDLINE, SPECINFO, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry.

L6 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:554213 CAPLUS
DOCUMENT NUMBER: 131:348851
TITLE: Sterols and fatty acids of the Mortierellaceae: taxonomic implications
AUTHOR(S): Weete, J. D.; Gandhi, S. R.
CORPORATE SOURCE: Department of Botany & Microbiology, Alabama Agricultural Experiment Station, Auburn University, AL, 36849, USA
SOURCE: Mycologia (1999), 91(4), 642-649
CODEN: MYCOAE; ISSN: 0027-5514
PUBLISHER: Mycological Society of America
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The total sterols of selected Mortierella species were analyzed by GLC/MS with the aim of detg. if the distribution of major sterols followed taxonomic lines within the zygomycetous family Mortierellaceae. Major sterols detected were ergosterol, desmosterol, 24-methylene cholesterol, 22-dihydroergosterol, and 24,25-methylene cholesterol, and their distribution followed taxonomic lines. In species belonging to the subgenus Micromucor, the qual. sterol distribution patterns were similar to one another with ergosterol (43% to 69% of the total sterols) and 22-dihydroergosterol (16% to 35%) being the two major sterols. These species also contained the apparent ergosterol analog C29.DELTA.5,7,22 and the corresponding .DELTA.5,7 diene. Although desmosterol was detected in each of the species belonging to the subgenus Mortierella, and ergosterol was absent, it was not always the first major sterol. 24-Methylene cholesterol and 24,25-methylene cholesterol were the first major sterols in some species. The results of this study show that the subgenus Micromucor is quite different from the subgenus Mortierella with respect to major sterol distribution patterns. Furthermore, because of the substantial qual. nature of the differences, i.e., essentially no common sterols, the subgenus Micromucor may not be sufficiently related to the subgenus Mortierella to be placed in the family Mortierellaceae. Further support for this is that members of the two subgenera could also be distinguished on the basis of presence (subgenus Mortierella) or absence (subgenus Micromucor) of arachidonic acid. Furthermore, sterol patterns of the Mucor species analyzed in this study were similar to each other but were not sufficiently similar to those of the Micromucor to suggest a close taxonomic affinity with the Mucoraceae.

L6 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:251012 CAPLUS
DOCUMENT NUMBER: 128:320924
TITLE: Edible fats containing arachidonic acid and foods containing the same
INVENTOR(S): Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu; Doisaki, Nobushige; Furihata, Kiyomi
PATENT ASSIGNEE(S): Suntory Limited, Japan; Nippon Suisan Kaisha, Ltd.; Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu; Doisaki, Nobushige; Furihata, Kiyomi
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9816119 | A1 | 19980423 | WO 1997-JP3631 | 19971009 |
| W: AU, CA, KR, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| JP 10191886 | A2 | 19980728 | JP 1996-289172 | 19961011 |
| AU 9744719 | A1 | 19980511 | AU 1997-44719 | 19971009 |
| EP 956774 | A1 | 19991117 | EP 1997-943165 | 19971009 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| PRIORITY APPLN. INFO.: | | | JP 1996-289172 | 19961011 |
| | | | WO 1997-JP3631 | 19971009 |

AB Edible fats contain arachidonic acid obtained from microorganisms; have little unsaponified matters and, above all, the smallest possible amt. of cyclopropane sterols which have never been eaten; and are suitable for the prodn. of foods, in particular, modified milks for infants. The fats contain .ltoreq.0.8%, preferably .ltoreq.0.6 % of unsaponified matters and .gtoreq.20% of arachidonic acid originating in microorganisms. Further, these fats contain .ltoreq.0.3%, preferably .ltoreq.0.15% of 24,25-methylenecholest-5-en-3.beta.-ol. The microorganisms are those belonging to the subgenus Mortierella of the genus Mortierella and being capable of producing arachidonic acid. These microorganisms belong to the species alpina of the genus Mortierella. The foods include modified milks for premature infants, modified milks for infants, foods for infants, and foods for pregnant women and nursing mothers contg. the above-mentioned edible fats.

L6 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:163703 CAPLUS
DOCUMENT NUMBER: 128:216446
TITLE: Process for preparing fat or oil containing unsaturated fatty acid
INVENTOR(S): Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu
PATENT ASSIGNEE(S): Suntory Limited, Japan; Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9808967 | A1 | 19980305 | WO 1997-JP2989 | 19970827 |
| W: AU, CA, CN, KR, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| JP 10070992 | A2 | 19980317 | JP 1996-230210 | 19960830 |
| AU 9740311 | A1 | 19980319 | AU 1997-40311 | 19970827 |
| CN 1232507 | A | 19991020 | CN 1997-198403 | 19970827 |
| EP 957173 | A1 | 19991117 | EP 1997-937813 | 19970827 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| PRIORITY APPLN. INFO.: | | | JP 1996-230210 | 19960830 |

AB A process for prepg. fat or oil contg. unsatd. fatty acids, characterized by cultivating a microorganism belonging to the subgenus Mortierella or the genus Mortierella in a medium contg. a nitrogen source derived from a soybean and harvesting the fat or oil contg. unsatd. fatty acids from the culture. The process can provide fat or oil having a low 24,25-methylenecholest-5-en-3.beta.-ol content.

L6 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1992:486421 CAPLUS
DOCUMENT NUMBER: 117:86421
TITLE: Occurrence of a novel sterol, 24,25-methylenecholest-5-en-3.beta.-ol, in Mortierella alpina 1S-4
AUTHOR(S): Shimizu, Sakayu; Kawashima, Hiroshi; Wada, Masaru; Yamada, Hideaki
CORPORATE SOURCE: Dep. Agric. Chem., Kyoto Univ., Kyoto, 606, Japan
SOURCE: Lipids (1992), 27(6), 481-3
CODEN: LPDSAP; ISSN: 0024-4201
DOCUMENT TYPE: Journal
LANGUAGE: English
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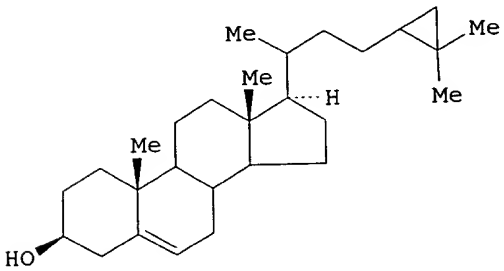


I

AB 24,25-Methylenecholest-5-en-3.beta.-ol (I), which has not been reported previously to exist in nature, was isolated from mycelia of an arachidonic acid-producing fungus, M. alpina 1S-4. Desmosterol, ergosta-5,24(25)-dien-3.beta.-ol, and ergosta-5,25-dien-3.beta.-ol were also found in the fungus, but ergosterol and cholesterol were not detected.

L6 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1979:541090 CAPLUS
DOCUMENT NUMBER: 91:141090
TITLE: Sterols with cyclopropane-containing side chains: synthesis and acid isomerization
AUTHOR(S): Tarchini, Claudio; Rohmer, Michel; Djerassi, Carl
CORPORATE SOURCE: Dep. Chem., Stanford Univ., Stanford, CA, 94305, USA
SOURCE: Helv. Chim. Acta (1979), 62(4), 1210-16
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: English
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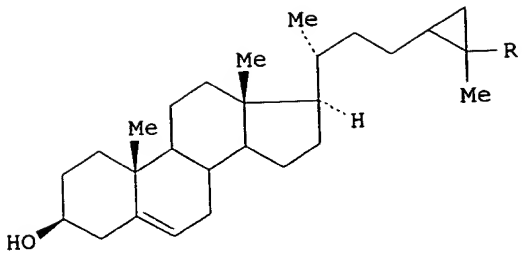
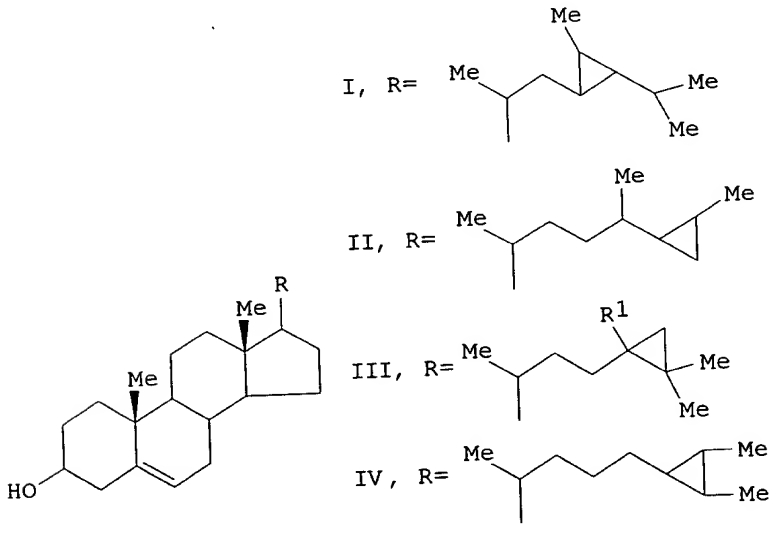



I

AB Methanocholestenol I (R = Me), was prepd. from 6.beta.-methoxy-3.alpha.,5-cyclo-5.alpha.-cholan-24-ol (II) by successive Wittig condensation with Ph3PCHMe2, cycloaddn. reaction with Cl2C:, dechlorination by Li-NH3(l), and cyclosteroid deprotection by treatment Zn(OAc)2-HOAc. I (R = Et) was prepd. analogously from II via Wittig condensation with Ph3PCHMeEt. Isomerization of I (R = Me) in CHCl3 contg. HCl gave ergosta-5,24-dien-3.beta.-diol, codisterol, and epicodiesterol. Similar isomerization of I (R = Et) gave (24-E,Z)-24,26-dimethylcholesta-5,24-dien-3.beta.-ol, 24,26-dimethylcholesta-5,25-dien-3.beta.-ol (4 isomers), and 25,26-didehydroaplysterol.

L6 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1979:204347 CAPLUS
DOCUMENT NUMBER: 90:204347
TITLE: Isolation and structure of 26,27-cycloaplysterol (petrosterol), a cyclopropane-containing marine sterol
AUTHOR(S): Ravi, B. N.; Kokke, W. C. M. C.; Delseth, Claude; Djerassi, Carl
CORPORATE SOURCE: Scripps Inst. Oceanogr., La Jolla, Calif., USA
SOURCE: Tetrahedron Lett. (1978), (45), 4379-80
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
GI




AB Petrosterol, a constituent of Halichondra species, to which structure I

was assigned by D. Sica and F. Zollo (1978), was reassigned structure II having the 24R,25S,27R-configuration on the basis of high resoln. mass spectral data. Two minor sterols were also isolated and had data compatible with III (R1 = H) and III (R1 = Me) or IV.

L6 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1972:552450 CAPLUS
DOCUMENT NUMBER: 77:152450
TITLE: Synthesis of steroidal cyclopropanes
AUTHOR(S): Ikan, R.; Markus, A.; Goldschmidt, Z.
CORPORATE SOURCE: Dep. Org. Chem., Heb. Univ., Jerusalem, Israel
SOURCE: J. Chem. Soc., Perkin Trans. 1 (1972), (19), 2423-5
CODEN: JCPRB4
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB Redn. (Li-Me3COH-THF) of the cyclopropane adducts prepd. by reaction of Cl2C: with stigmasterol, desmosterol, and lanosterol gave 22,23-methylenestigmast-5-en-3.beta.-ol, 24,25-methylenecholest-5-en-3.beta.-ol (I), and 24,25-methylenelanost-8-en-3.beta.-ol. Desmosteryl acetate (II) was prepd. from 3.beta.-acetoxychol-5-en-24-oic acid by reaction with CH2N2, photochem. Wolff rearrangement, Grignard reaction with MeMgI, and dehydration.

=> d hist

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FILE 'CAPLUS' ENTERED AT 13:33:52 ON 20 MAR 2000
L1 4004 S STEROL/TI
L2 82 S L1 AND NOVEL/TI
L3 1 S L2 AND MORTIERELLA (W) ALPINA/TI

FILE 'REGISTRY' ENTERED AT 13:43:36 ON 20 MAR 2000
L4 3 S 20780-41-0 OR 38362-69-5 OR 52936-69-3

FILE 'CAPLUS' ENTERED AT 13:46:06 ON 20 MAR 2000
S 38362-69-5/REG#

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L5 1 S 38362-69-5/RN

FILE 'CAPLUS' ENTERED AT 13:46:28 ON 20 MAR 2000
L6 7 S L5

=> log out

'OUT' IS NOT VALID HERE
For an explanation, enter "HELP LOGOFF".

WEST

# Freeform Search

Database: US Patents Full-Text Database

Term: 3925343.pn.

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## Search History

| DB Name | Query | Hit Count | Set Name |
|---|---|---|---|
| USPT | 3925343.pn. | 1 | L38 |
| USPT | l35 and l23 | 8 | L37 |
| USPT | l35 and soybean | 17 | L36 |
| USPT | l2 and l16 | 52 | L35 |
| USPT | l27 and animal adj food | 31 | L34 |
| USPT | l29 and animal adj food | 0 | L33 |
| USPT | l29 and (animal or dog or cat) | 13 | L32 |
| USPT | l27 and (animal or dog or cat) | 246 | L31 |
| USPT | l27 not feed | 10 | L30 |
| USPT | l23 and l24 | 13 | L29 |
| USPT | l27 and (food.ti. or feed.ti.) | 14 | L28 |
| USPT | l25 and @py<=1997 | 304 | L27 |
| USPT | l25 and arachinonic.clm. | 0 | L26 |
| USPT | l16 and l24 | 389 | L25 |
| USPT | feed or animal adj food or dog adj food | 357769 | L24 |
| USPT | l22 and l19 | 26 | L23 |

| | | | |
|---|---|---|---|
| USPT | l16 and l21 | 28 | L22 |
| USPT | baby adj food or infant adj food | 692 | L21 |
| USPT | baby food | 2007 | L20 |
| USPT | l18 | 512 | L19 |
| ALL | l16 and l17 | 570 | L18 |
| ALL | nutriti$ | 34921 | L17 |
| ALL | arachidonic | 6619 | L16 |
| ALL | l13 and unsaturated adj fatty | 15 | L15 |
| ALL | l13 and fermentation.ti. | 94 | L14 |
| ALL | l11 and @py<=1997 | 1286 | L13 |
| ALL | l11 and py<=1997 | 1389 | L12 |
| ALL | l9 and l10 | 1389 | L11 |
| ALL | Nitrogen adj source | 11365 | L10 |
| ALL | l7 and l8 | 2211 | L9 |
| ALL | fermentation$ | 60162 | L8 |
| ALL | soybean adj meal | 3661 | L7 |
| ALL | l5 and nitrogen adj content | 14 | L6 |
| ALL | l3 and soybean adj meal | 219 | L5 |
| ALL | l2 and l3 | 0 | L4 |
| ALL | defatted adj soybean | 1323 | L3 |
| ALL | Mortierella | 408 | L2 |
| USPT | infant adj food.ti. | 4 | L1 |

```
=> s mortierella

L4          634 MORTIERELLA

=> s l4 and l3

L5            0 L4 AND L3

=> s l4 and arachidonic (w) acid

          28036 ARACHIDONIC
        2404738 ACID
          26991 ARACHIDONIC (W) ACID
L6          162 L4 AND ARACHIDONIC (W) ACID

=> s arachidonic (w) acid

          28036 ARACHIDONIC
        2404738 ACID
L7        26991 ARACHIDONIC (W) ACID

=> s l7 and l3

L8            6 L7 AND L3

=> d iall 1

L8   ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2000 ACS
ACCESSION NUMBER:          1997:644892  CAPLUS
DOCUMENT NUMBER:           127:306779
TITLE:                     Characterization of olive oil produced with a new
                           enzyme processing aid
AUTHOR(S):                 Ranalli, Alfonso; De Mattia, Gabriella
CORPORATE SOURCE:          Istituto Sperimentale per la Elaiotecnica, Citta S.
                           Angelo, 65013, Italy
SOURCE:                    J. Am. Oil Chem. Soc. (1997), 74(9), 1105-1113
                           CODEN: JAOCA7; ISSN: 0003-021X
PUBLISHER:                 AOCS Press
DOCUMENT TYPE:             Journal
LANGUAGE:                  English
CLASSIFICATION:            17-9 (Food and Feed Chemistry)
ABSTRACT:
By carrying out olive oil extn. expts. with 3 olive varieties (Dritta,
Coratina, and Leccino), a new processing cytolase enzyme aid was tested.  The
oils, obtained with the enzyme adjuvant upon extn., were characterized (with
respect to ref. oils) by: (i) relatively higher content of natural
antioxidants
(free and linked phenols, ortho-diphenols, tocopherols), trans-2-hexenal,
total
arom. substances, chlorophyllic pigments, and steroid hydrocarbons; (ii)
slightly lower content of aliph. alcs., triterpene alcs., triterpene dialcs.,
.beta.-sitosterol, and total sterols; (iii) slightly higher values of integral
color index, resistance to autoxidn., and global quality indexes; (i.v.) lower
values of carotenoid color index, alc. index and some qual. ratios, such as
trans-2-hexenal/hexanal, trans-2-hexenal/total aroma,
campesterol/stigmasterol;
and (v) a higher sensory score.  Hence, they exhibited better overall qual.
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characteristics. The enzyme adjuvant, in addn., led to higher oil extn. outputs.

SUPPL. TERM: olive oil characterization enzyme processing
INDEX TERM: Antioxidants
Color
Food processing
Odor
Volatile substances
(characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: Aliphatic alcohols
Carotenes, biological studies
Diglycerides
Glycerides, biological studies
Phenols, biological studies
Steroids, biological studies
Sterols
Tocopherols
ROLE: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: Enzymes, biological studies
ROLE: BPR (Biological process); BIOL (Biological study); PROC (Process)
(characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: Olive oil
ROLE: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: Pigments (biological)
(chlorophyllic; characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: Enzymes, biological studies
ROLE: BPR (Biological process); BIOL (Biological study); PROC (Process)
(com., pectinolytic, Cytolase; characterization of olive oil produced with a new enzyme processing aid)
INDEX TERM: 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 57-88-5, Cholesterol, biological studies 59-02-9, .alpha.-Tocopherol 60-33-3, 9,12-Octadecadienoic acid (Z,Z)-, biological studies 64-17-5, Ethanol, biological studies 64-19-7, Acetic acid, biological studies 66-25-1, Hexanal 71-41-0, n-Amyl alcohol, biological studies 78-83-1, Isobutyl alcohol, biological studies 78-93-3, 2-Butanone, biological studies 83-45-4, Sitostanol 83-46-5, .beta.-Sitosterol 83-48-7, Stigmasterol 96-17-3, 2-Methylbutyraldehyde 96-22-0, 3-Pentanone 108-46-3, Resorcinol, biological studies 111-27-3, 1-Hexanol, biological studies 111-65-9, Octane, biological studies 111-87-5, 1-Octanol, biological studies 112-79-8, Elaidic acid 112-80-1, Oleic acid, biological studies 112-85-6, Docosanoic acid 123-51-3, Isoamyl alcohol 141-78-6, Ethyl acetate, biological studies 331-39-5, Caffeic acid 373-49-9, Palmitoleic acid 463-40-1 469-38-5, Cycloartenol 472-28-6, Butyrospermol

474-60-2, Campestanol 474-62-4, Campesterol 474-63-5, 24-**Methylenecholesterol** 474-67-9, Brassicasterol 481-19-6, .delta.7-Stigmasterol 506-12-7, Heptadecanoic acid 506-21-8, Linolelaidic acid 506-32-1, **Arachidonic acid** 506-51-4, 1-Tetracosanol 506-52-5, 1-Hexacosanol 516-78-9, .delta.7-Campesterol 544-63-8, Myristic acid, biological studies 545-46-0, Uvaol 545-48-2, Erythrodiol 557-59-5, Lignoceric acid 557-61-9, 1-Octacosanol 559-70-6, .beta.-Amyrin 590-86-3, 3-Methylbutyraldehyde 616-25-1, 1-Penten-3-ol 661-19-8, 1-Docosanol 928-95-0, trans-2-Hexenol 928-96-1, cis-3-Hexen-1-ol 1449-09-8, 24-Methylenecycloartanol 1576-87-0, trans-2-Pentenal 1629-58-9, 1-Penten-3-one 2364-23-0, Clerosterol 6728-26-3, trans-2-Hexenal 7616-22-0, .gamma.-Tocopherol 18472-36-1, .delta.5-Avenasterol 20273-24-9, 23290-26-8, .delta.7-Avenasterol 28040-00-8, 2-Penten-1-ol Heptadecenoic acid 28933-89-3, Eicosenoic acid
ROLE: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(characterization of olive oil produced with a new enzyme processing aid)

=> d iall 2-6

L8 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1989:493576 CAPLUS
DOCUMENT NUMBER: 111:93576
TITLE: Fatty acids and sterols of selected hyphochytriomycetes and chytridiomycetes
AUTHOR(S): Weete, J. D.; Fuller, M. S.; Huang, M. Q.; Gandhi, S.
CORPORATE SOURCE: Coll. Sci. Math., Auburn Univ., Auburn, AL, 36849, USA
SOURCE: Exp. Mycol. (1989), 13(2), 183-95
CODEN: EXMYD2; ISSN: 0147-5975
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 10-1 (Microbial Biochemistry)
ABSTRACT:
The fatty acids and sterols of 8 chytridiomycetes and 2 hyphochytriomycetes and fatty acids of the oomycete Pythium gracile were analyzed by gas-liq. chromatog. In addn. to the fatty acids anticipated for fungi, the 2 hyphochytriomycetes (Hyphochytrium catenoides and Rhizidiomyces apophysatus) and 4 of the chytridiomycetes (Catenaria anguillulae, Blastocladiella emersonii, Monoblepharella sp., and Allomyces macrogynus) contained ***arachidonic*** **acid** as a major fatty acid of the polar lipid fraction, and this fatty acid was detected as a minor component of Rhizophlyctis rosea and Spizellomyces punctatum. Eicosapentaenoic acid constituted 4.6% of the polar lipid fatty acids in Monoblepharella sp., and trace amts. were detected in several other species. Both the gamma (.omega.-6) and alpha (.omega.-3) isomers of linolenic acidd were detected in all of the species analyzed. Cholesterol was the predominant (>73%) sterol of B. emersonii, R. rosea, A. macrogynus, and Chytridium confervae and a minor (<12%) component of C. anguillulae and H. catenoides. The major sterols of the other species included lanosterol (C. anguillulae, 45%), stigmasta-5,22-dien-3.beta.-ol (H. catenoides, 51%), 24-ethylcholesterol (S. punctatum, 38%; H. catenoides,

17%; Monoblepharella sp., 70%; and R. apophysatus, 84%), 24-methylcholesterol (H. catenoides, 23%; R. apophysatus, 14%; S. punctatum, 53%), and 24-methylene cholesterol (Rhizophydium sphaerotheca, 51%). Neither ergosterol nor fucosterol was detected in any of the species studied.

SUPPL. TERM: fungi fatty acid sterol
INDEX TERM: Allomyces macrogynus
Blastocladiella emersonii
Catenaria anguillulae
Chytridium confervae
Hyphochytrium catenoides
Mastigomycotina
Monoblepharella
Rhizidiomyces apophysatus
Rhizophlyctis rosea
Rhizophydium sphaerotheca
Spizellomyces punctatus
(fatty acids and sterols of)

INDEX TERM: Fatty acids, biological studies
ROLE: BIOL (Biological study)
(of zoosporic fungi)

INDEX TERM: Steroids, biological studies
ROLE: BIOL (Biological study)
(hydroxy, of zoosporic fungi)

INDEX TERM: 57-88-5, Cholesterol, biological studies 79-63-0
83-48-7, Stigmasta-5,22-dien-3.beta.-ol 463-40-1,
.alpha.-Linolenic acid 474-63-5, 24-
**Methylenecholesterol** 506-26-3, .gamma.-Linolenic
acid 506-32-1, **Arachidonic acid**
10417-94-4, Eicosapentaenoic acid 19044-06-5,
24-Ethylcholesterol 23929-42-2, 24-Methylcholesterol
ROLE: BIOL (Biological study)
(of zoosporic fungi)

L8 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1985:44560 CAPLUS
DOCUMENT NUMBER: 102:44560
TITLE: Studies on the lipid composition in three species of shellfish
AUTHOR(S): Son, Young Ock; Ha, Bong Seuk
CORPORATE SOURCE: Dep. Nurs. Sci., Jinju Health Nurse's Coll., S. Korea
SOURCE: Han'guk Yongyang Siklyong Hakhoechi (1983), 12(4), 407-19
CODEN: HYSHDL; ISSN: 0253-3154
DOCUMENT TYPE: Journal
LANGUAGE: Korean
CLASSIFICATION: 17-7 (Food and Feed Chemistry)
ABSTRACT:
Total lipid contents of shellfish were 1.8% in oyster, 0.4% in top shell (Turbo
cornutus) and 4.0% in corb shell (Corbicula fluminea producta). The contents of total fatty acids in total lipids were 80.7, 71.2 and 73.2%; and the contents of unsaponifiable matters were 15.4, 18.1 and 23.1%, resp. Total lipids were mainly composed of triglycerides, polar lipid-pigments and sterols,
and hydrocarbon-esterified sterols were detd. in each sample. The major fatty acids in total lipids were palmitic (37.0%), eicosapentaenoic (13.5%) and linoleic acid (11.2%) in oyster, octadecatetraenoic (15.8%), palmitic (11.2%), oleic (8.6%) and linoleic acid (8.1%) in top shell, and palmitic (34.0%), linoleic (12.3%) and palmitoleic acid (9.8%) in corb shell. The contents of eicosapentaenoic acid of oyster and top shell were higher than those of corb shell. Sterols mainly consisted of cholesterol [57-88-5] (42.7.apprx.64.0%), brassicasterol [474-67-9] (15.6.apprx.24.7%), and 24-
***methylenecholesterol*** [474-63-5] (4.7.apprx.21.9%). Sitosterol [83-46-5] (5.3%) was detected only in oyster and 22-dehydrocholesterol

[34347-28-9] (12.9%) only in top shell. The contents of fractionated neutral lipids were higher than those of polar lipids, in each sample. Glycolipids and phospholipids in polar lipids were similar in quantity. The neutral lipids were composed of triglycerides (33.0.apprx.36.7%), free sterols (25.7-31.2%), esterified sterols (12.4-23.7%) and free fatty acids (5.1-11.7%). The contents of triglycerides and free sterols were higher than those of free fatty acids and esterified sterols. The major fatty acids in neutral lipids were palmitic (28.4.apprx.25.4%), eicosapentaenoic (18.6.apprx.21.9%) and linoleic acid (9.0.apprx.5.4%) in oyster and corb shell and octadecatetraenoic (14.5%), eicosapentaenoic (13.5%) and palmitic acid (12.3%) in top shell. The major fatty acids in glycolipids were eicosenoic (10.2%), palmitic (12.1%) and linolenic acid (10.2%) in oyster, eicosenoic (26.0%), octadecatetraenoic (14.6%) and eicosadienoic acid (12.9%) in top shell, and eicosadienoic (21.4%) stearic (14.6%), octadecatetraenoic (8.5%) and eicosenoic acid (8.5%) in corb shell. The major fatty acids in phospholipids were myristic (16.0%), stearic (10.6%), eicosenoic (10.5%) and palmitic acid (10.3%) in oyster, oleic (22.2%), stearic (20.7%) and linolenic acid (11.8%) in top shell, and eicosapentaenoic (25.1%), myristic (8.7%) and **arachidonic acid** (8.3%) in corb shell.

SUPPL. TERM: lipid shellfish; fatty acid shellfish; oyster lipid; sterol shellfish

INDEX TERM: Corbicula fluminea producta
Oyster
Shellfish
Turbo cornutus
(lipids of)

INDEX TERM: Glycolipids
Phospholipids
Fatty acids, biological studies
Glycerides, biological studies
Lipids, biological studies
ROLE: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(of shellfish)

INDEX TERM: Steroids, biological studies
ROLE: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(hydroxy, of shellfish)

INDEX TERM: 57-88-5, biological studies 83-46-5 474-63-5 474-67-9 34347-28-9
ROLE: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(of shellfish)

L8 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1984:629073 CAPLUS

DOCUMENT NUMBER: 101:229073

TITLE: Lecithin-dependent phytosterol utilization by larvas of Culex pipiens (Diptera:Culicidae)

AUTHOR(S): Dadd, R. H.; Kleinjan, J. E.

CORPORATE SOURCE: Div. Entomol. Parasitol., Univ. California, Berkeley, CA, 94720, USA

SOURCE: Ann. Entomol. Soc. Am. (1984), 77(5), 518-25
CODEN: AESAAI; ISSN: 0013-8746

DOCUMENT TYPE: Journal

LANGUAGE: English

CLASSIFICATION: 18-5 (Animal Nutrition)

ABSTRACT:

Without sterol in synthetic dietary media C. pipiens could not develop beyond the 2nd instar. With cholesterol [57-88-5] as the only dietary lipid, good development to the adult stage occurred, whereas with ergosterol [57-87-4] or

stigmasterol [83-48-7] development was no better than in the absence of sterol, and with all other phytosterols tested development was variously restricted. When the basic diet incorporated a lipid supplement contg. the ***arachidonic*** **acid** [506-32-1] needed for newly emerged adults to fly and survive, larval/pupal development and adult viability with ergosterol, stigmasterol, and most phytosterols were as good as with cholesterol. Besides **arachidonic acid**, the lipid supplement contained an antioxidant, ascorbyl palmitate, and synthetic dipalmitoyl lecithin as a dispersing agent; but with lecithin alone supplementing the basic diet, good development to the adult stage was facilitated with ergosterol, stigmasterol, and other phytosterols, although adults lacking **arachidonic acid** were not viable. On the basis of diets supplemented with lecithin, it was concluded that ergosterol, stigmasterol, sitosterol [83-46-5], 24-**methylenecholesterol** [474-63-5], fucosterol [17605-67-3], desmosterol [313-04-2] and perhaps 7-dehydrocholesterol [434-16-2] could support growth and development as well, or almost so, as cholesterol. With cholesterol, development to the 4th instar was good, but nearly all individuals failed to metamorphose. With lathosterol [80-99-9] or 22-trans-cholestadienol [34347-28-9], development was markedly inferior compared with cholesterol and the well utilized phytosterols, and survival through metamorphosis was severely reduced. These results are discussed in relation to current views on the metab. of sterols by phytophagous/omnivorous insects.

SUPPL. TERM: phytosterol metab lecithin Culex; mosquito nutrition phytosterol; sterol mosquito nutrition

INDEX TERM: Lecithins
ROLE: BIOL (Biological study)
(phytosterols in nutrition of mosquitoes in relation to dietary)

INDEX TERM: Culex pipiens
(phytosterols in nutrition of, dietary lecithin in relation to)

INDEX TERM: Animal nutrition
(phytosterols in, of Culex pipiens, dietary lecithin in relation to)

INDEX TERM: Steroids, biological studies
ROLE: BIOL (Biological study)
(hydroxy, in nutrition of Culex pipiens, dietary lecithin in relation to)

INDEX TERM: 506-32-1
ROLE: BIOL (Biological study)
(in nutrition of mosquitoes, phytosterols in relation to)

INDEX TERM: 57-87-4 57-88-5, biological studies 80-99-9 83-46-5 83-48-7 313-04-2 434-16-2 474-63-5 17605-67-3 34347-28-9
ROLE: BIOL (Biological study)
(in nutrition of Culex pipiens, dietary lecithin in relation to)

L8 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1984:31910 CAPLUS

DOCUMENT NUMBER: 100:31910

TITLE: Lipid composition and metabolism in oospores and oospheres of Achlya americana

AUTHOR(S): Fox, Norman C.; Coniglio, John G.; Wolf, Frederick T.

CORPORATE SOURCE: Dep. Gen. Biol., Vanderbilt Univ., Nashville, TN, 37235, USA

SOURCE: Exp. Mycol. (1983), 7(3), 216-26
CODEN: EXMYD2; ISSN: 0147-5975

DOCUMENT TYPE: Journal

LANGUAGE: English

CLASSIFICATION: 10-1 (Microbial Biochemistry)

ABSTRACT:
Oospores and oospheres of A. americana were isolated by sonication and filtration through nylon-mesh cloth of progressively diminishing porosity, and their lipid compn. was investigated. The av. dry wt. of an oospore was 3.2 ng.
Approx. 37% of the dry wt. was composed of lipid. Triacylglycerols represented
88.7% of the total lipid, unesterified fatty acids made up 9.7%, and sterols, sterol esters, phospholipids, and mono- and diacylglycerols each constituted <1% of the total. Palmitic, oleic, and linoleic acids were the predominant fatty acids, along with smaller amts. of myristic, palmitoleic, stearic, arachidonic, and eicosapentaenoic acids. The fatty acid compn. of the triacylglycerol fraction was similar to that of the total lipid, while that of the phospholipid fraction was high in oleic acid. The unesterified fatty acid fraction was higher in satd. components than was the total lipid, while the sterol ester fraction was higher in unsatd. fatty acids. In both the total lipid and the various lipid classes, unsatd. fatty acids increased during spore
development. The sterol fraction consisted of 72% fucosterol, 22% cholesterol,
and 7% 24-**methylenecholesterol**. In both oospheres and oospores, acetate-1-14C was assimilated most readily into phospholipids, triacylglycerols, and unesterified fatty acids, and was incorporated preferentially into palmitic, palmitoleic, and oleic acids. Arachidonic-1-14C acid was incorporated by isolated oospheres into eicosapentaenoic acid, indicating that **arachidonic acid** is the immediate precursor of eicosapentaenoic acid.

SUPPL. TERM: lipid Achlya oospore oosphere
INDEX TERM: Phospholipids
Fatty acids, biological studies
Lipids, biological studies
ROLE: BIOL (Biological study)
(in Achlya americana oospores and oospheres)
INDEX TERM: Achlya americana
(lipid compn. and metab. in oospores and oospheres of)
INDEX TERM: Steroids, biological studies
ROLE: BIOL (Biological study)
(hydroxy, in Achlya americana oospores and oospheres)
INDEX TERM: 57-10-3, biological studies 57-11-4, biological studies
57-88-5, biological studies 60-33-3, biological studies
112-80-1, biological studies 373-49-9 474-63-5
506-32-1 544-63-8, biological studies 17605-67-3
32839-30-8
ROLE: BIOL (Biological study)
(of Achlya americana oospores and oospheres)

L8 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1982:216246 CAPLUS
DOCUMENT NUMBER: 96:216246
TITLE: Studies on the lipid of aquatic products. Part 4. On
the flesh lipid composition of cephalopods
AUTHOR(S): Ha, Bong Seuk
CORPORATE SOURCE: Coll. Sci. Eng., Gyeongsang Natl. Univ., Jinju, 620, S. Korea
SOURCE: Han'guk Susan Hakhoechi (1982), 15(1), 59-73
CODEN: HSHKAW; ISSN: 0374-8111
DOCUMENT TYPE: Journal
LANGUAGE: Korean
CLASSIFICATION: 17-7 (Food and Feed Chemistry)
Section cross-reference(s): 12

ABSTRACT:
The total lipid content of Octopus vulgaris, O. variabilis, and Loligo beka was

0.5, 0.8, and 0.6% (wet wt. basis), resp. Of this fraction, fatty acids constituted 19.3, 47.8, and 38.4% and unsaponifiable matter 10.9, 18.8, and 41.1%, resp. Palmitic [57-10-3], oleic [112-80-1], linoleic [60-33-3], octadecatetraenoic [81275-46-9] and eicosapentaenoic acids [32839-30-8] were the major fatty acids, and the sterol fraction was composed of primarily cholesterol [57-88-5] (82.4-89.1%). 22-dehydrocholesterol [34347-28-9] And 24- **methylenecholesterol** [474-63-5] were detected also. ***arachidonic*** **acid** [506-32-1] Was a major component of L. beka glycolipids. The neutral lipid and phospholipid compns. are given.

SUPPL. TERM: lipid compn octopus; Loligo lipid compn
INDEX TERM: Loligo beka
Octopus variabilis
Octopus vulgaris
(lipid compn. of)
INDEX TERM: Glycolipids
Phospholipids
Lipids, biological studies
ROLE: BIOL (Biological study)
(of octopus and squid)
INDEX TERM: Fatty acids, biological studies
ROLE: BIOL (Biological study)
(of octopus and squid lipids)
INDEX TERM: Steroids, biological studies
ROLE: BIOL (Biological study)
(hydroxy, of octopus and squid)
INDEX TERM: 57-10-3, biological studies 57-88-5, biological studies
60-33-3, biological studies 112-80-1, biological studies
474-63-5 506-32-1 544-63-8, biological studies
32839-30-8 34347-28-9 81275-46-9
ROLE: BIOL (Biological study)
(of octopus and squid lipids)

=> s l6 and soybean

67013 SOYBEAN
L9 18 L6 AND SOYBEAN

=> d ibib abs 1-18

L9 ANSWER 1 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 2000:143151 CAPLUS
TITLE: Polyunsaturated fatty acid production with **Mortierella** alpina by solid substrate fermentation
AUTHOR(S): Jang, Hung-Der; Lin, Yuh-Yih; Yang, Shang-Shyng
CORPORATE SOURCE: Department of Agricultural Chemistry, National Taiwan University, Taipei, 10617, Taiwan
SOURCE: Bot. Bull. Acad. Sin. (2000), 41(1), 41-48
CODEN: BBASA6; ISSN: 0006-8063
PUBLISHER: Academia Sinica, Institute of Botany
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polyunsatd. fatty acids (PUFA) were produced with **Mortierella** alpina by solid substrate fermn. Rice bran was the most effective substrate for PUFA prodn., followed by peanut meal residue, wheat bran, and sweet potato residue. The optimal conditions for PUFA prodn. were rice bran supplemented with 2.3 to 5% nitrogen at an initial moisture content of 65 to 68% and a pH range of 6 to 7. Each gram of substrate carbon yielded 122.2 mg of total PUFA, including 12.8 mg of eicosapentaenoic acid (EPA), 47.8 mg of linoleic acid (LA), 7.1 mg of .alpha.-linolenic acid (ALA), and 54.5 mg of **arachidonic** **acid** (ARA) for 8 to 12 days incubation. C/N ratios between 14.5

and 18.5 favored EPA and LA prodn., while C/N ratios between 19.8 and 21 enhanced ARA and total PUFA prodn. Total PUFA, EPA and ARA prodn. increased 12, 84.4 and 46.1%, resp., when the culture temp. was shifted from 20.degree.C to 12.degree.C on the fifth day. Supplement of **soybean** and linseed oils increased LA by 84.9 and 36%, ARA by 71 and 42.1%, and EPA by 130.6 and 92.1%, resp.

L9 ANSWER 2 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:795983 CAPLUS
DOCUMENT NUMBER: 132:31774
TITLE: Engineering polyunsaturated fatty acid production in plants using desaturase-specifying nucleic acids
INVENTOR(S): Mukerji, Pradip; Knutzon, Deborah
PATENT ASSIGNEE(S): Abbott Laboratories, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9964616 | A2 | 19991216 | WO 1999-US13332 | 19990611 |
| W: AU, BG, BR, CA, CN, CZ, HU, IL, JP, KR, MX, NO, NZ, PL, RO, SI, SK, TR | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| PRIORITY APPLN. INFO.: | | | US 1998-89149 | 19980612 |

AB Claimed are nucleic acid constructs encoding fatty acid desaturases and methods for prepg. polyunsatd. long chain fatty acids in transgenic plants, plant parts and plant cells, such as leaves, roots, fruits and seeds. Nucleic acid sequences and constructs encoding fatty acid desaturases, including .DELTA.5-desaturases, .DELTA.6-desaturases and .DELTA.12-desaturases, are used to generate transgenic plants, plant parts and cells which contain and express one or more transgenes encoding one or more desaturases. Expression of the desaturases with different substrate specificities in the plant system permit the large scale prodn. of polyunsatd. long chain fatty acids such as docosahexaenoic acid, eicosapentaenoic acid, .alpha.-linolenic acid, gamma-linolenic acid, **arachidonic acid** and the like for modification of the fatty acid profile of plants, plant parts and tissues. Manipulation of the fatty acid profiles allows for the prodn. of com. quantities of novel plant oils and products.

L9 ANSWER 3 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:795981 CAPLUS
DOCUMENT NUMBER: 132:31773
TITLE: Engineering polyunsaturated fatty acid production in plants using desaturase-specifying nucleic acids
INVENTOR(S): Knutzon, Debbie
PATENT ASSIGNEE(S): Calgene LLC, USA
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9964614 | A2 | 19991216 | WO 1999-US13559 | 19990610 |
| W: CA, JP, MX, US | | | | |

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRIORITY APPLN. INFO.: US 1998-89043 19980612

AB Claimed are nucleic acid constructs encoding fatty acid desaturases and methods for prepg. polyunsatd. long chain fatty acids in transgenic plants, plant parts and plant cells, such as leaves, roots, fruits and seeds. Nucleic acid sequences and constructs encoding fatty acid desaturases, including .DELTA.5-desaturases, .DELTA.6-desaturases and .DELTA.12-desaturases, are used to generate transgenic plants, plant parts and cells which contain and express one or more transgenes encoding one or more desaturases. Expression of the desaturases with different substrate specificities in the plant system permit the large scale prodn. of polyunsatd. long chain fatty acids such as docosahexaenoic acid, eicosapentaenoic acid, .alpha.-linolenic acid, gamma-linolenic acid, **arachidonic acid** and the like for modification of the fatty acid profile of plants, plant parts and tissues. Manipulation of the fatty acid profiles allows for the prodn. of com. quantities of novel plant oils and products.

L9 ANSWER 4 OF 18 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1999:700165 CAPLUS

TITLE: Preliminary studies of **arachidonic acid** production of **mortierella**

AUTHOR(S): Bao, Shixiang; Huang, Huiqin; Zhu, Fake; Lin, Weitie; Yao, Ruhua

CORPORATE SOURCE: National Key Biotechnology Laboratory for Tropical Crops, China Academy of Tropical Crops., Haikou, 571101, Peop. Rep. China

SOURCE: Junwu Xitong (1999), 18(3), 326-329
CODEN: JUXIFB; ISSN: 1007-3515

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB **Mortierella** sp. M10 was used to produce **arachidonic acid**. The effects of carbon source, glucose concn., vegetable oil, etc. on the cell growth and **arachidonic acid** prodn. were studied. Glucose was the most effective carbon source for the prodn. of **arachidonic acid**. Addn. of corn oil olive oil and **soybean** oil to the medium at the low concn. increased the accumulation of **arachidonic acid**. The prodn. of **arachidonic acid** reached 0.95 g L-1 after fermn. in a 5L fermenter in the basal medium contg. 100 g L-1 glucose and 2% olive oil.

L9 ANSWER 5 OF 18 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1999:632794 CAPLUS

DOCUMENT NUMBER: 131:335892

TITLE: Effect of nitrogen source on mycelial morphology and **arachidonic acid** production in cultures of **Mortierella** alpina

AUTHOR(S): Park, Enoch Y.; Koike, Yasuhisa; Higashiyama, Kenichi; Fujikawa, Shigeaki; Okabe, Mitsuyasu

CORPORATE SOURCE: Laboratory of Biotechnology, Department of Applied Biological Chemistry, Faculty of Agriculture, Shizuoka University, Shizuoka, 422-8529, Japan

SOURCE: J. Biosci. Bioeng. (1999), 88(1), 61-67
CODEN: JBBIF6; ISSN: 1389-1723

PUBLISHER: Society for Bioscience and Bioengineering, Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of nitrogen source on **arachidonic acid**

(AA) prodn. and morphol. changes during the culture of **Mortierella** alpina were investigated using an image anal. system. When yeast ext., gluten meal, or corn steep liquor was used, a circular pellet morphol. was obtained. However, when Pharmamedia, fish meal, or **soybean** meal was used, M. alpina formed radial filamentous mycelia. The radial filamentous area in the case of **soybean** meal was 75% of the total mycelial area. In a jar fermentor culture, M. alpina morphol. varied with the cultivation period: (i) at 0-6 h culture, the inoculated pellet-like mycelia were adapted to the new environment, (ii) at 6 h-1 d culture, filamentous mycelia grew exponentially which yielded a feather-like morphol., (iii) at 1-2 d culture, the filamentous mycelia became disentangled as a result of the mech. agitation; consequently, the proportion of filamentous mycelia was increased, (iv) at 2-4 d culture, mycelia showed stationary growth, but the AA concn. increased rapidly, and (v) at 4-6 d culture, hyphae grew thick radially with the AA concn. continuing to increase gradually. In the case of the cultures with feather-like morphol. obtained using **soybean** meal, the AA yield was 0.14 g/g dry cell wt., which was two times higher than that in cultures grown using yeast ext. These results suggest that the feather-like morphol. of culture of M. alpina is suitable for AA prodn.

L9 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:578945 CAPLUS
DOCUMENT NUMBER: 131:213190
TITLE: Manufacture of **Arachidonic acid**-and/or eicosapentaenoic acid-containing. fat
INVENTOR(S): Akimoto, Kengo; Higashiyama, Kenichi; Shimizu, Akira
PATENT ASSIGNEE(S): Suntory, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 11243981 | A2 | 19990914 | JP 1998-52021 | 19980304 |

AB The title fat is manufd. with .omega.-9 polyunsatd fatty acid-producing microorganism mutant that has enhanced .DELTA.5 and .DELTA.6 desaturase activities and that has reduced or inactivated .DELTA.12 desaturase activity in a medium contg. unsatd. fatty acid. The microorganism mutant may also have higher chain-lengthening enzyme activity.

L9 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1999:464065 CAPLUS
DOCUMENT NUMBER: 131:84842
TITLE: Cloning, sequencing, expression and use of .DELTA.5-fatty acid desaturases
INVENTOR(S): Napier, Johnathan A.; Michaelson, Louise; Stobart, Keith
PATENT ASSIGNEE(S): University of Bristol, UK
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9933958 | A2 | 19990708 | WO 1998-GB3895 | 19981223 |
| WO 9933958 | A3 | 19990902 | | |

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9917748 A1 19990719

PRIORITY APPLN. INFO.:

AU 1999-17748 19981223
GB 1997-27256 19971223
GB 1998-14034 19980629
WO 1998-GB3895 19981223

AB This invention relates to cDNA sequences encoding .DELTA.5-fatty acid desaturases of **Mortierella** alpina and Caenorhabditis elegans, the encoded .DELTA.5-fatty acid desaturases, and applications for the .DELTA.5-fatty acid desaturases. A method of converting di-homo-.gamma.-linolenic acid to **arachidonic acid** catalyzed by the .DELTA.5-fatty acid desaturases is reported. This invention relates also to expression of the recombinant .DELTA.5-fatty acid desaturases of M. alpina and C. elegans in yeast, phycomicetes and oil seed plants and tobacco. The invention provides also a method of producing polyunsatd. fatty acids using the .DELTA.5-fatty acid desaturases. The invention provides a foodstaff, dietary supplement and pharmaceutical prepn. contg. a polyunsatd. fatty acid produced by the .DELTA.5-fatty acid desaturases.

L9 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1999:314676 CAPLUS

DOCUMENT NUMBER: 131:113455

TITLE: Identification of .DELTA.12-fatty acid desaturase from **arachidonic acid**-producing **Mortierella** fungus by heterologous expression in the yeast Saccharomyces cerevisiae and the fungus Aspergillus oryzae

AUTHOR(S): Sakuradani, Eiji; Kobayashi, Michihiko; Ashikari, Toshihiko; Shimizu, Sakayu

CORPORATE SOURCE: Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Kyoto, 606-8502, Japan

SOURCE: Eur. J. Biochem. (1999), 261(3), 812-820
CODEN: EJBCAI; ISSN: 0014-2956

PUBLISHER: Blackwell Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Based on the sequence information for the .omega.3-desaturase genes (from Brassica napus and Caenorhabditis elegans), which are involved in the desatn. of linoleic acid (.DELTA.9, .DELTA.12-18: 2) to .alpha.-linolenic acid (.DELTA.9, .DELTA.12, .DELTA.15-18: 3), a cDNA was cloned from the filamentous fungal strain, **Mortierella** alpina 1S-4, which is used industrially to produce **arachidonic acid**. Homol. anal. with protein databases revealed that the amino acid sequence showed 43.7% identity as the highest match with the microsomal .omega.6-desaturase (from Glycine max, **soybean**), whereas it exhibited 38.9% identity with the microsomal .omega.3-desaturase (from **soybean**). The evolutionary implications of these enzymes will be discussed. The cloned cDNA was confirmed to encode a .DELTA.12-desaturase, which was involved in the desatn. of oleic acid (.DELTA.9-18: 1) to linoleic acid, by its expression in both the yeast Saccharomyces cerevisiae and the fungus Aspergillus oryzae. Anal. of the fatty acid compn. of yeast and fungus transformants demonstrated that linoleic acid (which was not contained in the control strain of S. cerevisiae) was accumulated in the yeast transformant and that the fungal transformant contained a large amt. of linoleic acid (71.9%). Genomic Southern blot anal. of the transformants with the **Mortierella**

.DELTA.12-desaturase gene as a probe confirmed integration of this gene into the genome of A. oryzae. The M. alpina 1S-4 .DELTA.12-desaturase is the first example of a cloned nonplant .DELTA.12-desaturase.

L9 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:777848 CAPLUS
DOCUMENT NUMBER: 130:138322
TITLE: Fungal production of eicosapentaenoic and arachidonic acids from industrial waste streams and crude **soybean** oil
AUTHOR(S): Cheng, Ming H.; Walker, Terry H.; Hulbert, Gregory J.; Raman, D. Raj
CORPORATE SOURCE: Agricultural Experiment Station, Department of Food Science and Technology, The University of Tennessee, Knoxville, TN, 37901-1071, USA
SOURCE: Bioresour. Technol. (1998), Volume Date 1999, 67(2), 101-110
CODEN: BIRTEB; ISSN: 0960-8524
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polyunsatd. fatty acids (PUFAs), including 5,8,11,14,17-cis-eicosapentaenoic acid (EPA) and 5,8,11,14-cis-**arachidonic acid** (ARA), have widespread nutritional and pharmaceutical value. This study investigated the potential prodn. of these two economically important fatty acids with a fungal fermn. process. The substrates for the fungal fermn. process were crude **soybean** oil (SBO), a sucrose waste stream (SWS), and a soymeal waste stream (SMW). Glucose (GLU) was used as a substrate in control groups. The microorganisms used were **Mortierella** elongata NRRL 5513 and Pythium irregulare ATCC 10951. The use of P. irregulare is preferred, since it produced high levels and reasonable ratios of EPA and ARA at various temps. (12, 18, and 24.degree.C). An advantage of P. irregulare was its ability to produce EPA at room temp., which is desirable for com. applications. **Soybean** oil had a unique characteristic of stabilizing pH; the optimal initial pH was 6.0. An emulsifier, Tween 80, allowed much greater dispersion of the SBO in aq. broth and helped increase EPA and ARA prodn. In expts. exploring the combination effects of sugars (1, 2, and 3%) with **soybean** oil (4%) and Tween 80 (0.2%) at 12, 18, and 24.degree.C, EPA yields of SMW + SBO were significantly higher than those of GLU + SBO and SWS + SBO. The greatest EPA prodn. (1400 mg/L) was obtained at 12.degree.C (1% SMW, 4% SBO). Cultivation of P. irregulare at reduced temps. increased lipid unsatn. The highest ARA level appeared at 18.degree.C-SMW + SBO (2000 mg/L), which was a statistically interactive temp.-media combination. The ARA/EPA ratio in this study ranged from 0.2 to 4.0, which would be reasonable for food additive or supplement applications, e.g., infant formula.

L9 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:712362 CAPLUS
DOCUMENT NUMBER: 129:326976
TITLE: Fungal fatty acid desaturases and cDNAs, transgenic plants expressing these cDNAs, and use of plant products for pharmaceuticals, cosmetics and nutritional compositions
INVENTOR(S): Knutzon, Deborah; Mukerji, Pradip; Huang, Yung-sheng; Thurmond, Jennifer; Chaudhary, Sunita; Leonard, Amanda Eun-yeong
PATENT ASSIGNEE(S): Calgene LLC, USA; Abbott Laboratories
SOURCE: PCT Int. Appl., 210 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9846764 | A1 | 19981022 | WO 1998-US7421 | 19980410 |
| W: | AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, US, US, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: | GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | |
| US 5968809 | A | 19991019 | US 1997-834655 | 19970411 |
| US 5972664 | A | 19991026 | US 1997-833610 | 19970411 |
| AU 9871147 | A1 | 19981111 | AU 1998-71147 | 19980410 |
| NO 9904926 | A | 19991130 | NO 1999-4926 | 19991008 |
| PRIORITY APPLN. INFO.: | | | US 1997-833610 | 19970411 |
| | | | US 1997-834033 | 19970411 |
| | | | US 1997-834655 | 19970411 |
| | | | US 1997-956985 | 19971024 |
| | | | WO 1998-US7421 | 19980410 |

AB The present invention relates to compns. and methods for prepg. polyunsatd. long chain fatty acids in plants, plant parts and plant cells, such as leaves, roots, fruits and seeds. Nucleic acid sequences and constructs encoding fatty acid desaturases, including .DELTA.5-desaturases, .DELTA.6-desaturases and .DELTA.12-desaturases, are used to generate transgenic plants, plant parts and cells which contain and express one or more transgenes encoding one or more desaturases. Expression of the desaturases with different substrate specificities in the plant system permit the large scale prodn. of polyunsatd. long chain fatty acids such as docosahexaenoic acid, eicosapentaenoic acid, .alpha.-linolenic acid, gamma-linolenic acid, **arachidonic acid** and the like for modification of the fatty acid profile of plants, plant parts and tissues. Manipulation of the fatty acid profiles allows for the prodn. of com. quantities of novel plant oils and products.
The cDNAs for **Mortierella** alpina .DELTA.5-, .DELTA.6- and .DELTA.12-fatty acid desaturases were cloned and sequenced. Transgenic Brassica napus expressing all three of these cDNAs were created and the fatty acid compn. of the extd. oil was detd.

L9 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:485185 CAPLUS
DOCUMENT NUMBER: 129:108087
TITLE: Media for culturing microorganisms and process for producing unsaturated fatty acids or lipids containing the same
INVENTOR(S): Higashiyama, Kenichi; Yaguchi, Toshiaki; Akimoto, Kengo; Shimizu, Sakayu
PATENT ASSIGNEE(S): Suntory Ltd., Japan
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| WO 9829558 | A1 | 19980709 | WO 1997-JP4898 | 19971226 |
| W: AU, CA, JP, KR, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9853414 | A1 | 19980731 | AU 1998-53414 | 19971226 |
| EP 960943 | A1 | 19991201 | EP 1997-950433 | 19971226 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| PRIORITY APPLN. INFO.: | | | JP 1996-349541 | 19961227 |
| | | | WO 1997-JP4898 | 19971226 |

AB A method for controlling the mycol. morphol. of microorganisms belonging to the genus **Mortierella** by using media for culturing microorganisms which contain 5 to 60 mM of phosphate ion, 5 to 60 mM of potassium ion, 2 to 50 mM of sodium ion, 0.5 to 9 mM of magnesium ion and 0.5 to 12 mM of calcium ion; a process for producing unsatd. fatty acids or lipids contg. the same characterized by culturing microorganisms belonging to the genus **Mortierella** in media contg. 5 to 60 mM of phosphate ion, 5 to 60 mM of potassium ion, 2 to 50 mM of sodium ion, 0.5 to 9 mM of magnesium ion and 0.5 to 12 mM of calcium ion; and media for culturing microorganisms characterized by contg. 5 to 60 mM of phosphate ion, 5 to 60 mM of potassium ion, 2 to 50 mM of sodium ion, 0.5 to 9 mM of magnesium ion and 0.5 to 12 mM of calcium ion were given.

L9 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1998:163703 CAPLUS
DOCUMENT NUMBER: 128:216446
TITLE: Process for preparing fat or oil containing unsaturated fatty acid
INVENTOR(S): Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu
PATENT ASSIGNEE(S): Suntory Limited, Japan; Higashiyama, Kenichi; Akimoto, Kengo; Shimizu, Sakayu
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9808967 | A1 | 19980305 | WO 1997-JP2989 | 19970827 |
| W: AU, CA, CN, KR, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| JP 10070992 | A2 | 19980317 | JP 1996-230210 | 19960830 |
| AU 9740311 | A1 | 19980319 | AU 1997-40311 | 19970827 |
| CN 1232507 | A | 19991020 | CN 1997-198403 | 19970827 |
| EP 957173 | A1 | 19991117 | EP 1997-937813 | 19970827 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| PRIORITY APPLN. INFO.: | | | JP 1996-230210 | 19960830 |
| | | | WO 1997-JP2989 | 19970827 |

AB A process for prepg. fat or oil contg. unsatd. fatty acids, characterized by cultivating a microorganism belonging to the subgenus **Mortierella** or the genus **Mortierella** in a medium contg. a nitrogen source derived from a **soybean** and harvesting the fat or oil contg. unsatd. fatty acids from the culture. The process can provide fat or oil having a low 24,25-methylenecholest-5-en-3.beta.-ol content.

L9 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1997:545855 CAPLUS

DOCUMENT NUMBER: 127:233575
TITLE: Production of high yields of **arachidonic acid** in a fed-batch system by **Mortierella** alpina ATCC 32222
AUTHOR(S): Singh, A.; Ward, O. P.
CORPORATE SOURCE: Microbial Biotechnology Laboratory, Department of Biology, University of Waterloo, Waterloo, ON, N2L 3G1, Can.
SOURCE: Appl. Microbiol. Biotechnol. (1997), 48(1), 1-5
CODEN: AMBIDG; ISSN: 0175-7598
PUBLISHER: Springer
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Of six strains of **Mortierella** tested, **Mortierella** alpina ATCC 32222 produced the highest yields of **arachidonic acid**. Supplementation of soy flour (1% w/v) and vegetable oils (1% vol./vol.) significantly increased the biomass, lipid content and **arachidonic acid** level. Replacement of NaNO3 with corn steep liquor (1% w/v) also improved **arachidonic acid** prodn. A fed-batch culture system at 25.degree.C, producing a high biomass (52.4 g/l) and **arachidonic acid** content (9.1 g/l) in 8 days, was developed. A fed-batch system at low temp. (15.degree.C) gave even higher **arachidonic acid** levels (11.1 g/l) in 11 days.

L9 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1990:422256 CAPLUS
DOCUMENT NUMBER: 113:22256
TITLE: Microbial manufacture of polyunsaturated fatty acid-enriched fat or oil
INVENTOR(S): Akimoto, Kengo; Shinmen, Yoshiji; Yamada, Hideaki; Shimizu, Akira
PATENT ASSIGNEE(S): Suntory, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 01304892 | A2 | 19891208 | JP 1988-237499 | 19880924 |
| | | | JP 1988-38481 | 19880223 |

PRIORITY APPLN. INFO.:
AB The title fat or oil is manufd. by culturing **arachidonic acid**-producing microorganism, e.g. **Mortierella**, in the presence of fat (or oil) as C source. M. alpina IFO 8568 was shake-cultured in a medium contg. linseed oil 0, 1.0, 2.0, or 3.0%, glucose, and yeast ext. for 9 days at 12.degree. to produce an oil contg. eicosapentaenoic acid 6.8, 19.0, 12.1, or 12.0%, resp.

L9 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1990:157126 CAPLUS
DOCUMENT NUMBER: 112:157126
TITLE: Inhibitory effects of mold oil including gamma-linolenate on platelet thrombus formation in mesenteric microvessels of the rat
AUTHOR(S): Nakahara, T.; Yokochi, T.; Kamisaka, Y.; Yamaoka, M.; Suzuki, O.; Sato, M.; Okazaki, S.; Ohshima, N.
CORPORATE SOURCE: Biol. Chem. Div., Natl. Chem. Lab. Ind., Ibaraki, 305, Japan
SOURCE: Thromb. Res. (1990), 57(3), 371-81
CODEN: THBRAA; ISSN: 0049-3848
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A diet including mold oil from lipid-accumulating fungus ( **Mortierella** ramanniana anglispora) contg. .gamma.-linolenic acid, showed an inhibitory effect on thrombus formation in the rat microvessels induced by the light-fluorescent dye method of the authors. Male Wistar rats were fed for 3-4 wk with 2 series of exptl. diets and were examd. for thrombus formation. The thrombus formation times to totally occlude, ts, were 347 s for mold oil + **soybean** oil and 236 s for palm oil + **soybean** oil in the 1st series of diets and 1288 s for mold oil, 538 s for olive oil, and 575 s for safflower oil in the 2nd series of diets. Fatty acid compn. of plasma, erythrocyte, and liver lipids showed an increase in arachidonate content with the diet including mold oil. The higher arachidonate content seems favorable for inhibiting thrombus formation with increasing PGI2 formation. In terms of the level of lipid hydroperoxides, indicated as a desatn. index of constituent fatty acids, the higher desatn. index with safflower oil gave a shorter ts, which suggested some O-derived free radicals from polyunsatd. fatty acids were involved in the mechanism of thrombogenesis studied by this method.

L9 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1989:455750 CAPLUS

DOCUMENT NUMBER: 111:55750

TITLE: Production of **arachidonic acid** by **Mortierella** fungi. Selection of a potent producer and optimization of culture conditions for large-scale production

AUTHOR(S): Shinmen, Yoshifumi; Shimizu, Sakayu; Akimoto, Kengo; Kawashima, Hiroshi; Yamada, Hideaki

CORPORATE SOURCE: Dep. Agric. Chem., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Appl. Microbiol. Biotechnol. (1989), 31(1), 11-16
CODEN: AMBIDG; ISSN: 0175-7598

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Various **Mortierella** were assayed for their productivity of **arachidonic acid** (ARA). Only strains of the subgenus **Mortierella** accumulated detectable amts. of ARA together with dihomo-.gamma.-linolenic acid. No strain of the subgenus Micromucor accumulated these C20 fatty acids, although they produced a C18 fatty acid, .gamma.-linolenic acid. A soil isolate, **Mortierella** alpina 1S-4, grew well in a liq. medium contg. glucose and yeast ext. as C and N sources, resp. Addn. of several natural oils such as olive and **soybean** oils to the medium increased the accumulation of ARA. Under optimal culture conditions in a 5-L bench-scale fermentor, the fungus produced 3.6 g/L of ARA in 7 days. On cultivation for 10 days at 28.degree. in a 2000-L fermentor, the same fungus produced 22.5 g mycelia (dry wt.) contg. 9.9 kg lipids/L, in which ARA comprised 31% of the total fatty acids. On holding the harvested mycelia for a further 6 days, major mycelial fatty acids (i.e. palmitic acid, oleic acid, linoleic acid, etc.) other than ARA rapidly decompd. and the ARA content of the total fatty acids reached nearly 70%.

L9 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1989:191142 CAPLUS

DOCUMENT NUMBER: 110:191142

TITLE: Microbial conversion of an oil containing .alpha.-linolenic acid to an oil containing eicosapentaenoic acid

AUTHOR(S): Shimizu, Sakayu; Kawashima, Hiroshi; Akimoto, Kengo; Shinmen, Yoshifumi; Yamada, Hideaki

CORPORATE SOURCE: Fac. Agric., Kyoto Univ., Kyoto, 606, Japan

SOURCE: JAOCS, J. Am. Oil Chem. Soc. (1989), 66(3), 342-7
CODEN: JJASDH

DOCUMENT TYPE: Journal
LANGUAGE: English

AB Mycelia of **arachidonic acid**-producing **Mortierella** converted an oil contg. .alpha.-linolenic acid to an oil contg. 5,8,11,14,17-cis-eicosapentaenoic acid (EPA). This conversion was obsd. when the organism was grown in a medium contg. the oil, glucose, and yeast ext. at 28.degree.. On the screening of various oils, linseed oil, in which .alpha.-linolenic acid is .apprx.60% of the total fatty acids, was the most suitable for EPA prodn. Under the optimal culture conditions, a selected strain, **Mortierella** alpina 20-17, converted 5.1% of the .alpha.-linolenic acid in the added oil to EPA, the EPA prodn. reaching 1.35 g/L of culture broth (41.5 mg/g dry mycelium). This value corresponded to 7.1% (by wt.) of the total fatty acids in the extd. lipids. The lipid also was rich in **arachidonic acid** (12.3%). Other major fatty acids in the lipid were palmitic 4.4, stearic 3.2, oleic 13.5, linoleic 13.7, .alpha.-linolenic 38.5, and .gamma.-linolenic 0.9%.

L9 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2000 ACS
ACCESSION NUMBER: 1988:453728 CAPLUS
DOCUMENT NUMBER: 109:53728
TITLE: Protein-fat interaction on serum cholesterol level, fatty acid desaturation and eicosanoid production in rats
AUTHOR(S): Sugano, Michihiro; Ishida, Takahiro; Koba, Kazunori
CORPORATE SOURCE: Sch. Agric., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: J. Nutr. (1988), 118(5), 548-54
CODEN: JONUAI; ISSN: 0022-3166

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The combined effects of dietary protein (casein or **soybean** protein) and fat (palm olein or mold oil) on several lipid parameters were studied in rats. The fatty acid compn. of the dietary fats was made comparable except for the proportions of polyunsatd. fatty acids; mold oil contributed .gamma.-linolenic acid (GLA) at the expense of a portion of the linoleic acid in palm olein. When animals were fed casein rather than **soybean** protein, serum cholesterol levels were higher irresp. of the fat source, but it took a longer time to produce a significant difference when the dietary fat was mold oil. **Soybean** protein increased fecal steroid excretion, and mold oil tended to stimulate the excretion of neutral steroids. The ratio of arachidonate to linoleate in phosphatidylcholine from plasma, liver and thoracic aorta was markedly higher in the casein than in the **soybean** protein groups. Mold oil predictably improved a redn. of arachidonate by vegetable protein. The aortic prodn. of prostacyclin was higher with mold oil than with palm olein irresp. of the protein source, although there was a trend toward a higher prodn. with casein. No protein-fat interaction was obsd. on the concn. of plasma thromboxane B2. Thus GLA effectively modified metabolic consequences of dietary protein.

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| FULL ESTIMATED COST | 78.20 | 78.35 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|

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=> s methylenecholesterol

L10 11 METHYLENECHOLESTEROL

=> d 1-11

L10 ANSWER 1 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 228572-72-3 REGISTRY
CN Reductase, 24-methylene sterol 24(28)- (Arabidopsis thaliana strain Columbia gene dwarf1) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Enzyme DWF1 (Arabidopsis thaliana strain Columbia gene dwarf1 24-methylenecholesterol to campesterol-converting)**
CN GenBank U12400-derived protein GI 516043
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

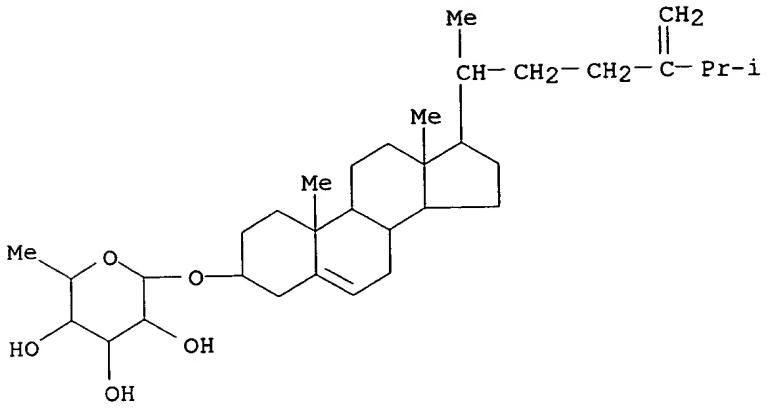
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 2 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 157112-56-6 REGISTRY
CN **DNA (Arabidopsis thaliana strain Columbia gene dwarf1 24-methylenecholesterol reductase DWF1 cDNA plus flanks) (9CI)** (CA INDEX NAME)
OTHER NAMES:
CN GenBank U12400
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 3 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 153506-95-7 REGISTRY
CN .alpha.-L-Galactopyranoside, (3.beta.)-ergosta-5,24(28)-dien-3-yl 6-deoxy-

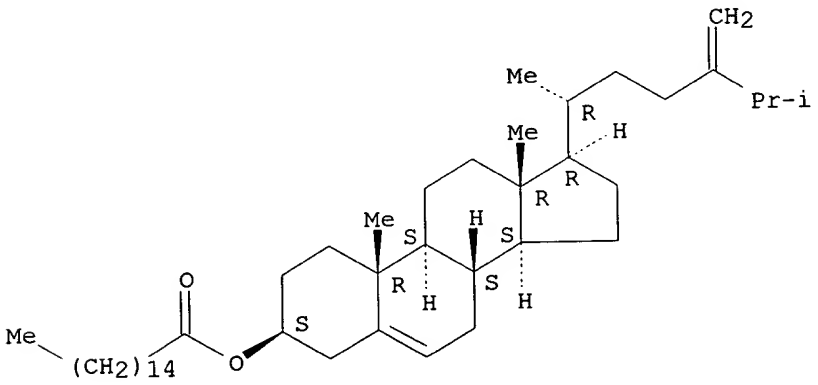
(9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Ergostane, .alpha.-L-galactopyranoside deriv.
OTHER NAMES:
CN **24-Methylenecholesterol 3-O-.alpha.-L-fucopyranoside**
MF C34 H56 O5
SR CA
LC STN Files: CA, CAPLUS




1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 4 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 127943-19-5 REGISTRY
CN Ergosta-5,24(28)-dien-3-ol, hexadecanoate, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **24-Methylenecholesterol palmitate**
FS STEREOSEARCH
MF C44 H76 O2
SR CA
LC STN Files: CA, CAPLUS

Absolute stereochemistry.

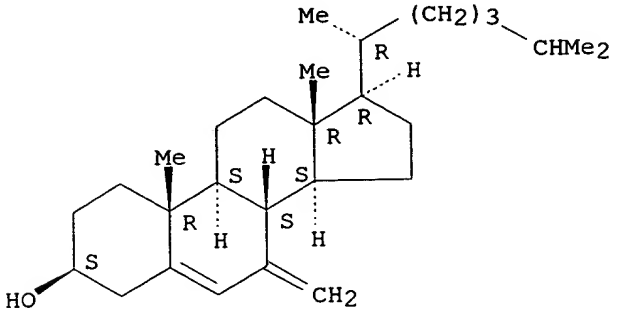



2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 5 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 78799-79-8 REGISTRY
CN Cholest-5-en-3-ol, 7-methylene-, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Cholesterol, 7-methylene- (6CI)

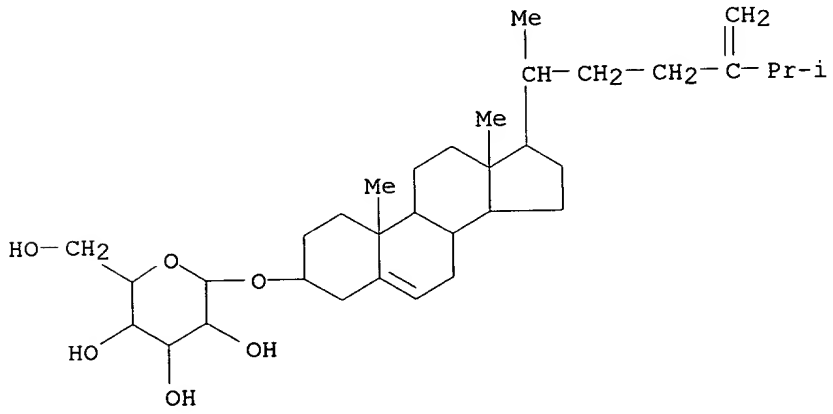
OTHER NAMES:
CN **7-Methylenecholesterol**
FS STEREOSEARCH
MF C28 H46 O
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS
(*File contains numerically searchable property data)

Absolute stereochemistry.




2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L10 ANSWER 6 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 76186-34-0 REGISTRY
CN .beta.-D-Glucopyranoside, (3.beta.)-ergosta-5,24(28)-dien-3-yl (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Ergostane, .beta.-D-glucopyranoside deriv.
OTHER NAMES:
CN **24-Methylenecholesterol glucoside**
MF C34 H56 O6
LC STN Files: BEILSTEIN*, CA, CAPLUS, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

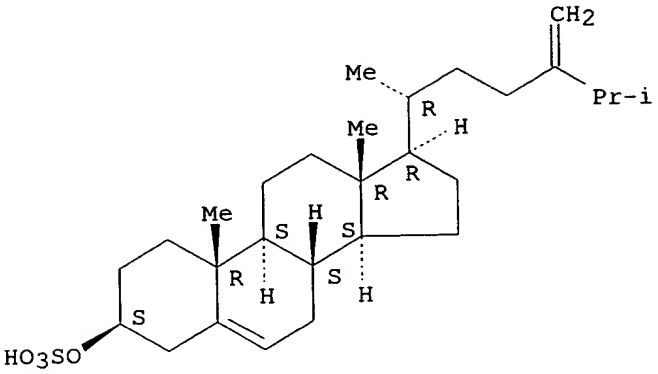



2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 7 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 65645-02-5 REGISTRY
CN Ergosta-5,24(28)-dien-3-ol, hydrogen sulfate, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **24-Methylenecholesterol sulfate**
FS STEREOSEARCH

MF C28 H46 O4 S
CI COM
LC STN Files: BIOSIS, CA, CAPLUS

Absolute stereochemistry.



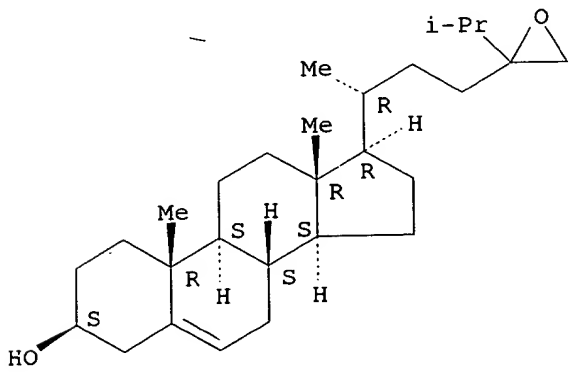

7 REFERENCES IN FILE CA (1967 TO DATE)
7 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 8 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 56467-82-4 REGISTRY
CN Reductase, 24-methylene sterol 24(28)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 24(28)Methylene reductase
CN 24-Methylene sterol 24(28)-reductase
CN **24-Methylenecholesterol reductase**
CN Sterol C-24(28) reductase
MF Unspecified
CI MAN
LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, TOXLIT

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
12 REFERENCES IN FILE CA (1967 TO DATE)
12 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 9 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 53517-52-5 REGISTRY
CN Ergost-5-en-3-ol, 24,28-epoxy-, (3.beta.,24.xi.)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **24-Methylenecholesterol epoxide**
FS STEREOSEARCH
MF C28 H46 O2
LC STN Files: CA, CAPLUS

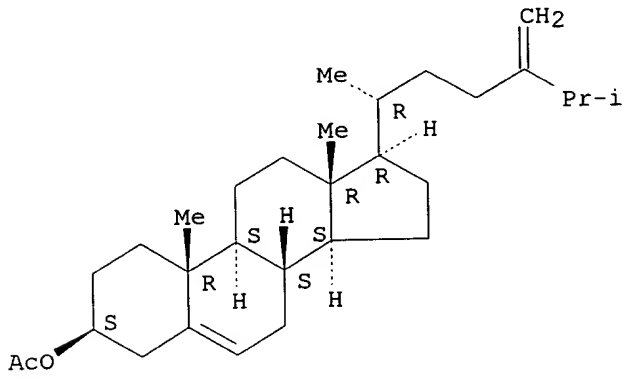
Absolute stereochemistry.



4 REFERENCES IN FILE CA (1967 TO DATE)
4 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L10 ANSWER 10 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 13000-50-5 REGISTRY
CN Ergosta-5,24(28)-dien-3-ol, acetate, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Ergosta-5,24(28)-dien-3.beta.-ol, acetate (6CI, 7CI, 8CI)
OTHER NAMES:
CN 24-Methylcholesta-5,24(28)-dien-3.beta.-ol acetate
CN **24-Methylenecholesterol acetate**
CN Chalinasterol acetate
FS STEREOSEARCH
DR 136920-82-6
MF C30 H48 O2
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, TOXLIT
(*File contains numerically searchable property data)

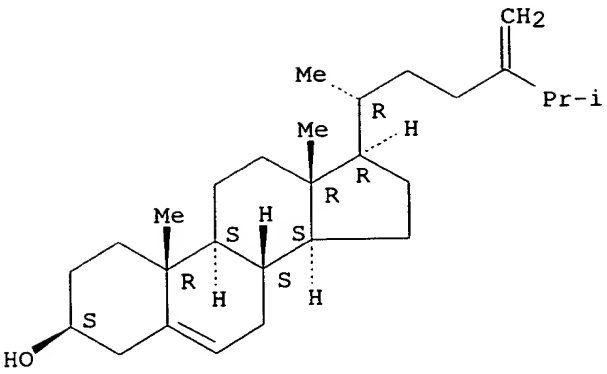
Absolute stereochemistry.




21 REFERENCES IN FILE CA (1967 TO DATE)
21 REFERENCES IN FILE CAPLUS (1967 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L10 ANSWER 11 OF 11 REGISTRY COPYRIGHT 2000 ACS
RN 474-63-5 REGISTRY
CN Ergosta-5,24(28)-dien-3-ol, (3.beta.)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Chalinasterol (6CI)
CN Ergosta-5,24(28)-dien-3.beta.-ol (7CI, 8CI)
OTHER NAMES:
CN 24-Methylcholesta-5,24(28)-dien-3.beta.-ol
CN **24-Methylenecholesterol**
CN Cholesterol, 24-methylene-
CN Ostreasterol
FS STEREOSEARCH
DR 6810-13-5, 136897-22-8
MF C28 H46 O
LC STN Files: AGRICOLA, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS,
CASREACT, EMBASE, IPA, MEDLINE, NAPRALERT, SPECINFO, TOXLINE, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry.




818 REFERENCES IN FILE CA (1967 TO DATE)
13 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
818 REFERENCES IN FILE CAPLUS (1967 TO DATE)
18 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 21.02 | 99.37 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | 0.00 | -13.36 |

STN INTERNATIONAL LOGOFF AT 12:43:38 ON 20 MAR 2000